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DEPARTMENT OF MECHANICAL ENGINEERING

MONTHLY NEWS – SEPTEMBER 2023

About Department of Mechanical Engineering

The department offers UG program in B.E Mechanical engineering from the year 2005. The department started a PG program M.E Industrial Safety Engineering from this academic year 2018-2019. This course has wide range of job opportunity in the Industrial and Academic sector of India as well as abroad. The Department aims at providing the students with a perfect blend of intellectual and practical experiences with the support state-of-the-art laboratories and well-defined academic structure. The UG program is accredited by National Board of Accreditation (NBA). The special feature of the Department has established three applied laboratories, in addition to the regular labs to support students to master skills to make each one industry-ready, with a solid grounding in the principles and practice of Mechanical Engineering. We also have a strong academy for training students to appear for GATE exam.

Vision of the Department

To produce competent Mechanical Engineers of excellent technical and managerial skills with profound morality for global, national and confront societal development.

Mission of the Department

1. To provide quality education in Mechanical Engineering with an interdisciplinary approach, encouraging innovation, research, and Entrepreneurship through world-class infrastructure and proficient teachers.
2. To make the department self-reliant through multiple programs with excellent curricula, best practices, and industry exposure.
3. To inculcate technical, professional, and leadership skills, moral ethics, and lifelong learning.

Programme Educational Outcomes

The Bachelor of Mechanical Engineering curriculum is designed to impart Knowledge, Skill, and Attitude to the graduates to

PEO 1: Have a successful professional career in Mechanical Engineering and allied industries, either by employment or through entrepreneurship.

PEO 2: Establish competency in Design, Thermal, Materials, and Manufacturing system with ethics and social responsibility.

PEO 3: Have a continual receptiveness for leadership and social challenges.

Message from the Head of the Department

**Dear Colleagues,
Greetings!**

I have great pleasure and pride to announce that the Department of Mechanical Engineering is publishing the newsletter for the month of September 2023. Amidst the Covid Pandemic situation, we strived hard to keep the students engaged, and utilize the time not only for quality education and for self-development. We are steadfast in our progress as it involved various activities that enabled the hidden talents of the department students and faculty members to be brought into light. Besides the lockdown, our faculty members are continuously attending various training programs, publishing research papers, book chapters and are also working on getting patents.

This newsletter is the reflection of department activities which showcases all the events held in the department, contribution of faculty members, students and the best practices adopted. I would like to congratulate all the members of the editorial board for their sincere effort to realize this venture.



Dr. R. Samuel Hansen, M.E., Ph.D.
Professor & Head
samuel_hansen@rediffmail.com

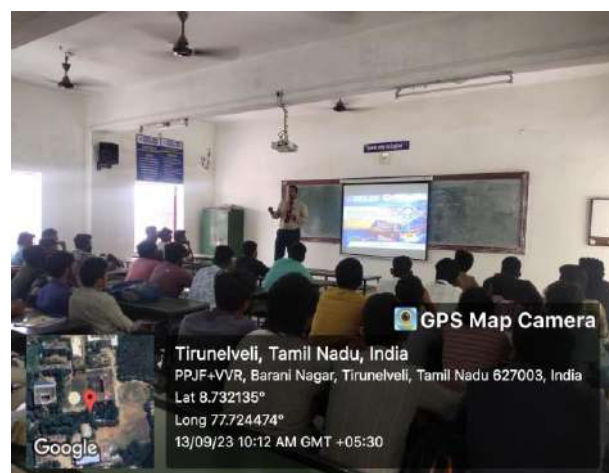
EDITORIAL BOARD

Dr. Dr. R. Samuel Hansen, Professor & Head of Department, Editor – in – Chief.

Dr. S. Balakrishnan, Assistant Professor, Mechanical Department, Faculty In charge.

GUEST LECTURE

Mechanical Engineering department held a guest lecture for III-year Mechanical Students A section on September 13, 2023, from 10 a.m. to 11.15 a.m. Dr. R. Prem Ananth, Assistant Professor in the Department of Electronics and Communication Engineering at Francis Xavier Engineering College in Tirunelveli, was invited to speak as a Guest Speaker during the session on "Microprocessor and Microcontroller Applications in Real Life." Dr.S.Balakrishnan, AP/Mech Coordinator, introduced the guest speaker and welcomed the gathering. Then he described the microprocessor and the necessity of this session to the students. The talk was attended by around 46 students. Dr. R. Prem Ananth, the keynote speaker, delivered his talk by sharing his real-world experiences with microprocessors. The lesson began with a clear difference between microprocessors and microcontrollers. Then we talked about the ADC principle and its use in numerous fields in our daily lives. The presentation covered how microcontrollers help the car industry with applications like as engine control units, airbag systems, and anti-lock brake systems. Then The speaker also discussed the changing trends in microprocessor and microcontroller technology. The session was quite informative. The event was professionally arranged and coordinated. Following the presentation, there was a question and answer session in which Dr. P. Prem Ananth clarified the doubts of the students who were eager to ask questions about microprocessors and controllers. The feedback google form link was shared to the students. Dr. S. Balakrishnan, AP, Coordinator, concluded the session with a vote of thanks.



INDUSTRIAL VISIT

Department of Mechanical Engineering IIIrd year #50 students visited Kasthiyar industries and Arul Engineering Works in Nazareth on 26.09.2023. To acquire and gain greater practical experience with contemporary machining methods, machine elements, and components. Understanding manufacturing processes, machinery used, assessing safety precautions, industry standards, and investigating sustainability activities within the industry. They learn about employee involvement and workplace practices in the sector.

Kasthiyar Industries is a notable firm with 43 years of experience in manufacturing and selling vast industrial & automobile rubber molds, precision press tools, CNC milling works, CNC lathe works, and molded rubber parts. Parts are supplied for injection molds, compression-type molds, transfer type, blow molds, vertical molds, and bakelite molds, as well as Royal Enfield firm. Arul Engineering is a prominent manufacturer and supplier of various types of dies, jigs, and fixtures. A comprehensive range of casting dies, jigs, and fittings are used to supply TVS-Motor Companies with major parts.

The visit is scheduled for the Design of Machine Elements and Joints subject in the fifth semester. Mr.S.Sheik Sulaiman, AP/Mechanical and J.Jeremy Jeba Samuel, AP/Mechanical Engineering Department, organized the event.



WORKSHOP

The Department of Mechanical Engineering has organized a Workshop on Introduction to Marker-Based Augmented Reality. The event has been conducted on 20.09.2023. This event is organized by the Department of Mechanical Engineering. Dr. R. Samuel Hansen Professor/ Head of the Department of Mechanical Engineering and Dr. K. Lakshmi Narayanan Applied Labs, Vertical Head have been the Convenors of this Workshop. Prof. S. Sheik Sulaiman, Assistant Professor of the Department of Mechanical Engineering has coordinated the workshop. Mr. Naveen Narayanan, Associate Professor, Department of Computer Science and Engineering, KL University, Vaddeswaram, Andhra Pradesh, India was the Resource Person for this Program.

The event was held through online mode during the time schedule of 1:15 to 2:15 PM. The Resource person gave very detailed information about the Introduction to Marker Augmented Reality. The Session was more practical and the Resource Person was more interactive with the Participants. He gave many examples for our easy understanding and the participants volunteered themselves to ask questions about choosing their Careers. He gave many ideas about the opening in various fields. Marker-based Augmented Reality (AR) is a technology that blends digital content or information with the physical world by using visual markers or patterns as reference points. This form of AR provides an interactive and immersive experience for users, enhancing their perception of reality with digital elements.

Department of Mechanical Engineering

Workshop on
Introduction to Marker Based Augmented Reality

Organized by
Innovation and Product Development & Hackathon Applied Labs

Resource Person
Mr. Naveen Narayanan
Assistant Professor
Department of CSE, KL University,
Vaddeswaram, Andhra Pradesh

Co-ordinators
Prof. S. Sheik Sulaiman, AP/Mech
Dr. R. Samuel Hansen HOD/Mech
Dr. K. Lakshmi Narayanan, Applied Labs, Vertical Head

20th SEPTEMBER 2023
@ CAD Lab

Logos: nif, Washington Accord, NEA, FXEC, FRANCIS XAVIER ENGINEERING COLLEGE, competition, AICTE - CH, Samru, and others.



WORKSHOP

On Sep 08 2023, the Department of Mechanical Engineering signed an MOU with CADD Technologies. This MOU aimed for the purpose of importing skill development training for all branch students of FXEC. In addition to this, a special presentation for mechanical engineering students has been imparted to inculcate the skill matrix from the second semester to the seventh semester. Overall this partnership is set to revolutionize our students' educational journey by providing them with top-notch technical skills aligned with the latest industry demands. From the MOU, students will benefit from various activities such as Industry 4.0 integrated training (IOT, AR/VR, Drone, interdisciplinary learning with world-class skills, support for patent filing, research & development, guest lectures, start-up and entrepreneurship, and international competitions. Finally, the session was concluded with a valedictory speech from Dr. S. Balaji Prof/TSD, and Dr. R. Samuel Hansen HOD/Mech. Dr.K.Jeyakumar GMD/Scad Group of Institutions, Dr.S.Krishnakumar GMA/Scad Group of Institutions, and Dr.V.Velmurugan Principal/FXEC motivated and appreciated for signing the MOU with CADD technologies.



WORKSHOP

On Sep 23, 2023, the Department of Mechanical Engineering in collaboration with the National Disaster Response Force (NDRF), hosted a transformative workshop on disaster management, empowering our students with essential life-saving skills and knowledge. Expert Trainers from NDRF provided hands-on training in disaster response techniques, covering everything from earthquake preparedness to first aid. This collaborative event not only strengthened our student's practical abilities but also fostered a sense of community and responsibility among them. As we move forward, let's carry the lessons learned and continue to educate ourselves on disaster management, together building a safer and more resilient future.

The poster for the 'Workshop on Disaster Management' is organized in association with the National Disaster Response Force (NDRF) on 23rd September, 2023. It features the logos of Francis Xavier Engineering College, NDRF-India, and various accreditation bodies including NIRF (51-100 Band), FXEC, Washington Accord, NBA, and AICTE-CII. The central image shows a hands-on training session where participants are practicing first aid techniques on a mannequin. The bottom of the poster displays several award logos, including 'Competition Success Review' and 'Top Prominent and Well-Known Engineering Colleges of India'.

This poster is identical to the one on the left, featuring the same text and accreditation logos. The central image is a group photograph of the workshop participants, many of whom are wearing orange NDRF uniforms, standing in front of the college building.

WORKSHOP

The Department of Mechanical Engineering has organized a Workshop on Innovation and Product Development & Hackathon

Applied Labs. The event has been conducted on 20.09.2023. This event is organized by the Department of Mechanical Engineering. Dr. R. Samuel Hansen Professor/ Head of the Department of Mechanical Engineering and Dr. K. Lakshmi Narayanan Applied Labs, Vertical Head have been the Convenors of this Workshop. Mr. J. Jeremy Jeba Samuel, Assistant Professor of the Department of Mechanical Engineering has coordinated the workshop. Dr. Iwin Thanakumar Joseph S, Associate Professor, Department of Computer Science and Engineering, Koneru Lakshmaiah Education Foundation, Vijayawada, Andhra Pradesh, India was the Resource Person of this Program.

The event was held online mode during the time schedule of 2:15 to 3:15. The Resource person gave very detailed information about the SMART Manufacturing systems (Industry 4.0). The Session was more practical and the Resource Person was more interactive with the Participants. He gave many examples for our easy understanding and the participants volunteered themselves to ask questions about choosing their Careers. He gave many ideas about the opening in various fields



GUEST LECTURE

A “Expert Talk on Start-up Avenues in Mechanical Engineering” was organized by Entrepreneurship Development Cell & Institution’s Innovation Council in association with the

Department of Mechanical Engineering on 30th September, 2023 at 01:30 pm to 04.30 pm. The program was held via offline mode. Dr.R.K.A.Bhalaji, AP/MECH inaugurated the session with welcome address.

Resource person told start-up in mechanical engineering focuses on developing innovative solutions for industrial processes and systems. Next he discussed about three major elements of market trends such as automation, green energy, AI & machine learning. Regarding automation, with the rise of Industry 4.0 start-ups are leveraging automation technologies to optimize manufacturing processes. For green energy, start-ups are driving the transition to cleaner energy sources by developing sustainable technologies and renewable energy solutions. Finally AI & Machine Learning are transforming the mechanical engineering landscape, empowering start-ups to develop smart and autonomous systems. Resource person said what are the challenges faced to develop the start-ups such as funding, competition and technical expertise and how to rectify that. Next he indicated about fundamental strategies to develop the effective start-up such as market research, network building and rapid iteration. Resource person shared the successful mechanical engineering start-ups such as 3D printing start-up, robotic arm company & solar energy start-up. Regarding start-up avenues in mechanical engineering, he told about lot of innovative opportunities such as smart manufacturing, autonomous vehicles and nanotechnology. Overall as the world becomes increasingly technologically advanced, start-ups in mechanical engineering play a critical role in driving innovation and shaping the future of industries. This program benefited a total of 40 students.



EXPERT TALK

A “Expert Talk on Sharing the Entrepreneurial Experience for the Mechanical Engineers” was organized by Entrepreneurship Development Cell & Institution’s Innovation Council in association with the Department of Mechanical Engineering on 20th September, 2023 at 09:30 am to 12.30 pm. The program was held via offline mode. Dr.R.K.A.Bhalaji, AP/MECH inaugurated the session with welcome address.

Resource person began with an introduction to the concept of entrepreneurship and its relevance to mechanical engineers. He emphasized that entrepreneurship is not limited to creating tech startups but can also be applied to various mechanical engineering domains. Next he shared their personal entrepreneurial journey, detailing the challenges they faced, the lessons they learned, and the milestones they achieved. The students appreciated the resource person openness about both successes and failures. The resource person discussed how mechanical engineers can identify opportunities in the market, emphasizing the importance of innovation and problem-solving skills. He highlighted several success stories of mechanical engineers who ventured into entrepreneurship and creating groundbreaking products. The talk delved into the crucial aspects of developing a business plan, including market research, funding options and competitive analysis. The resource person stressed the need for a well-structured plan as the foundation of any successful venture. Also practical challenges in entrepreneurship were a significant focus of the talk. The resource person addressed issues related to funding, scaling, team building and managing risks. They also shared strategies to overcome these challenges. Then the resource person emphasized the value of networking and seeking mentorship within the entrepreneurial ecosystems and he encouraged attendees to connect with experienced entrepreneurs and tap into their knowledge and resources. The talk concluded with an engaging Q&A session, during which the students had the opportunity to seek advice and clarification on various entrepreneurial topics. The resource person provide insightful answers to a wide range of questions.

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20th SEPTEMBER, 2023
09:30 AM to 12:30 PM

Guest Lecture on Sharing of Entrepreneurial Experience for the Mechanical Engineers

Mr. S. Gokula Krishnan
Student Entrepreneur
Final Year Mechanical, FXEC.

Organised by Entrepreneurship Development Cell & Institution's Innovation Council

In association with Department of Mechanical Engineering

Co-ordinator: **Dr. R.K.A. Bhalaji** Assistant Professor / MECH

Convener: **Dr. R. Samuel Hansen** HoD / MECH

Dr. Lourdes Poopala Rayen Director EDC & IIC President

Dr. K. Jeyakumar General Manager - Development

Dr. V. Velmurugan Principal



SEMINAR

The Seminar was organized by Safety Club in association with Department of Mechanical Engineering with the entitled ‘Importance of Safety in Tyre Manufacturing Industry’ held on Sep 15, 2023 at 2 PM. The resource person for the event is Mr.S.Hariharan, Safety Officer, Yokohama Tyres, Tirunelveli. First of all, resource person discussed about product ranges available in that industry. After that he shown the graphical diagram related to tyre manufacturing process. Next he revealed about how to manufacture the various tyres with suitable safety measures and also how to handle hoists, forklift trucks and conveyor in a safe manner. Finally, he shared some idea about how to mitigate risks in logistics also. From that seminar, students understood about tyre manufacturing process as well as the importance of safety in transportation and logistics.

FRANCIS XAVIER ENGINEERING COLLEGE
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Vannarpattai, Tirunelveli - 627 803

Importance of Safety in Tyre Manufacturing Industry

Organised by **Safety Club**

In association with Department of Mechanical Engineering

15 September 2023 2:00 pm

Mr. S. Hariharan
Safety Officer
Yokohama Tyres, Tirunelveli.

Resource Person

Co-ordinator: **Dr. R.K.A. Bhalaji** Assistant Professor / MECH

Overall Co-ordinator: **Mr. A. Santiago Stephen** Associate Professor / MATHS

Convener: **Dr. R. Samuel Hansen** Assistant Professor / MECH

Dr. K. Jeyakumar General Manager - Development

Dr. V. Velmurugan Principal - FXEC

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ALUMNI INTERACTION

Activity Code : ACT/23-24/002729

Programme : HVAC – Design and Simulation

Date : 15-09-2023

Resource Person : Mr. T.Manikanda Prabu., Piping Design Engineer, SAIPEM India Projects Ltd., Chennai

FX Alumni Association organized a guest lecture in association with department of Mechanical Engineering for the Second year Mechanical students. Mr. T.Manikanda Prabu., Piping Design Engineer, SAIPEM India Projects Ltd., Chennai delivered the guest lecture on “HVAC – Design and Simulation”. A heartfelt greeting to the resource person is extended by Dr. R. Samuel Hansen, HOD-MECH. The expert resource thanked the management for offering him this opportunity.

The HVAC (Heating, Ventilation, and Air Conditioning) Design and Simulation Guest Lecture was a highly informative and engaging event that provided valuable insights into the principles, methodologies, and best practices in HVAC system design and simulation. This summary report aims to capture the key takeaways and highlights from the lecture.



The poster features the Francis Xavier Engineering College logo at the top left, along with accreditation logos for NIF (Rankings 2023, 51-100 Band) and the Government of India. The central text reads "Alumni Event" and "HVAC – Design and Simulation". It is organized by the Francis Xavier Alumni Association in association with the Department of Mechanical Engineering. The resource person is Mr. T. Manikanda Prabu, Piping Design Engineer at SAIPEM India Projects Ltd., Chennai. A photo of Mr. Prabu is shown in a circular frame. The event is on 15 September 2023, from 3:00 pm to 4:00 pm. Other faculty members listed include Mr. S.M. Sunder Rajan (Assistant Professor / MECH), Dr. R. Samuel Hansen (HOD / Mech), Mr. S. Krishnakumar (Director, FXAA), Dr. K. Jeyakumar (GM, Development), and Dr. V. Velmurugan (Principal).



The HVAC Design and Simulation Guest Lecture provided a comprehensive overview of HVAC system design principles and simulation techniques. Attendees gained valuable knowledge and insights into creating energy-efficient, sustainable HVAC systems for various building types and its impact on building performance.

Activity Code: ACT/23-24/002729

Programme : Industry Expectations from Mechanical Engineers

Date : 25-09-2023

Resource Person: Mr. Sundara Mahalingam., Project Consultant, Thinking Digital Wording Pvt. Ltd., Chennai

FX Alumni Association organized a guest lecture in association with Department of Mechanical Engineering for the Second-year Mechanical students: Mr. Sundara Mahalingam., Project Consultant, Thinking Digital Wording Pvt. Ltd., Chennai delivered the guest lecture on "Industry Expectations from Mechanical Engineers". A heartfelt greeting to the resource person is extended by Dr. R. Samuel Hansen, HOD-MECH. The expert resource thanked the management for offering him this opportunity.

The "Industry Expectations from Mechanical Engineers" guest lecture was an enlightening event that provided valuable insights into the skills, knowledge, and attributes that the industry expects from mechanical engineers and organize workshops and seminars to further enhance skills like communication, project management, and problem-solving. This summary report aims to capture the key takeaways and highlights from the lecture.

The "Industry Expectations from Mechanical Engineers" guest lecture provided valuable insights into what the industry anticipates from mechanical engineering professionals. Attendees left with a deeper understanding of the skills and attributes required to excel in their careers as mechanical engineers.

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nif **WARRIOR 2022** **INRIA**
51-100 BAND

The Highest Star Status by the MOE, Govt. of India for Innovation and Entrepreneurship Activities

Alumni Event

Topic
Industry Expectations from Mechanical Engineers

Organised by
Francis Xavier Alumni Association

In association with
Department of Mechanical Engineering

Resource Person
Mr. Sundara Mahalingam
Project Consultant,
Think Digital Wording Pvt. Ltd.
Chennai

25
SEPTEMBER
2023
11.00 am - 12.00 pm

Mr. S.M. Sunder Rajan
Assistant Professor / MECH

Dr. R. Samuel Hansen
HOD / Mech

Mr. S. Krishnakumar
Director, FXAA

Dr. K. Jayakumar
GM, Development

Dr. V. Velmurugan
Principal